

REMARKS

This is a response to an Office Action mailed May 24, 2002 ("Office Action"). The Office Action has been reviewed, and in view of the foregoing amendments and following comments, reconsideration and allowance of all of the claims pending in the application are respectfully requested.

A petition for extension of time for one month with fee is filed concurrently herewith. Also, an excess claim fee for the three dependent claims added by this amendment is filed concurrently herewith as calculated in the amendment transmittal letter.

Specification

Applicants respectfully submit that the status of the cross-referenced applications has not changed since the previous filings of April 10 and April 11, 2002. Thus, the Examiner is respectfully requested to withdraw the objection.

Non-Statutory Double Patenting Rejections

Claims 1, 9, 17, and 25 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting. Applicants respectfully submit that a proper terminal disclaimer will be executed, if necessary, upon the indication that the claims are otherwise allowable.

Status of the Claims

Claims 1-39 are all the claims pending in this application. Claims 37-39 are added by this amendment. Claims 1-2, 4-10, 12-18, 20-26, and 28-32 stand

rejected under 35 U.S.C. 103 (a) as allegedly being unpatentable over a U.S. Patent Number 5,778, 400 issued to Tateno ("Tateno") in view of U.S. Patent Number 5,946,648 issued to Halstead, Jr. et al. ("Halstead"). Claims 3, 11, 19, and 27 stand rejected under 35 U.S.C. 103 (a) as allegedly being unpatentable over a U.S. Patent Number 5,778, 400 issued to Tateno in view of U.S. Patent Number 5,946,648 issued to Halstead and further in view of U.S. Patent Number 6,321,192 issued to Houchin et al. ("Houchin"). Claims 33-36 stand rejected under 35 U.S.C. 103 (a) as allegedly being unpatentable over a U.S. Patent Number 6,141,656 issued to Ozbutun et al. ("Ozbutun") in view of U.S. Patent Number 5,778,213 issued to Shakib et al. ("Shakib").

Rejection Under 35 U.S.C. §103(a)

Claims 1-2, 4-10, 12-18, 20-26, and 28-32 stand rejected under 35 U.S.C. 103 (a) as allegedly being unpatentable over Tateno in view of Halstead. Applicants respectfully traverse this rejection. In an effort to advance prosecution, however, applicants have amended independent claims 1, 9, 17, and 25 to more clearly define this invention. Independent claim 1 is amended to recite the features of accepting an input of the characters of the search string, wherein the characters can be represented in any of a plurality of character sets corresponding to an undetermined language. Independent claims 9, 17, and 25 have been amended to recite similar features to the above quoted features. At least these features are not suggested or disclosed in Tateno, Halstead, or their combination.

The Examiner acknowledges that Tateno does not specifically detail the evaluating feature as claimed (see page 17 of the Office Action). The examiner, therefore, relies on Halstead to overcome the deficiencies of Tateno. In particular, the Examiner relies on the matching of stem characters in the prefix analysis in Halstead (see figures 18 and 19 of Halstead), where words are broken

and prefix bound morphemes are identified. In contrast, the present invention is related to comparing each of the characters of the search string to a plurality of pre-determined candidate character sets to determine one or more matches between the plurality of pre-determined candidate character sets and the search string. Neither Tateno nor Halstead, alone or in combination disclose or suggest evaluating the search string by comparing each of the characters of the search string to a plurality of pre-determined candidate character sets to determine one or more matches between the plurality of pre-determined candidate character sets and the search string. Therefore, Applicants respectfully submit that independent claims 1, 9, 17, and 25 are allowable for at least the foregoing reasons.

Dependent claims 2, 4-8, 10, 12-16, 18, 20-24, 26, 28-32 each depend from one of independent claims 1, 9, 17 or 25 and, therefore, contain the features recited in the independent claims. As mentioned above, the cited references fail to suggest or disclose each of the features in the independent claims and, thus, necessarily fail to suggest or disclose each of the features in the dependent claims. Therefore, Applicants respectfully request that dependent claims 2, 4-8, 10, 12-16, 18, 20-24, 26, 28-32 are also allowable for at least the foregoing reasons.

Claims 3, 11, 19 and 27 stand rejected under 35 U.S.C § 103(a) as allegedly being unpatentable over Tateno, Halstead and further in view Houchin. Applicants respectfully traverse this rejection. As mentioned above, the combination of Tateno and Halstead fails to suggest or disclose at least the features of the independent claims. Houchin does not disclose these features either, and, thus, fails to cure the deficiencies of the proposed combination with respect to those features. Therefore, since claims 3, 11, 19 and 27 contain features of their independent claims, these claims are patentable over the combination of Tateno, Halstead and/or Houchin at least by virtue of their

dependency. Applicants respectfully request that the rejection of claims 3, 11, 19 and 27 be withdrawn.

Claims 33-36 stand rejected under 35 U.S.C. 103 (a) as allegedly being unpatentable over Ozbutun in view of Shakib. Applicants respectfully traverse this rejection. In an effort to advance prosecution, however, applicants have amended independent claims 33-36 to more clearly define this invention. Claim 33 has been amended to recite the feature of "enabling the processor to receive the electronic search string at the input device, the electronic search string comprising a plurality of characters, wherein the plurality of characters can be represented in any of a plurality of character sets corresponding to an unknown language". At least this feature is not suggested or disclosed in Ozbutun, Shakib, or their combination.

In particular, the Examiner relies on Ozbutun for disclosing the feature of "enabling the processor to create a mask comprising a number of mask columns equivalent to the predetermined number of columns in the character table bank, wherein the mask columns contain an indication of the character sets against which the universal code characters of the electronic message are to be evaluated" (*see* page 21 of the Office Action). The Examiner refers to lines 15-45, and 46-54 of Ozbutun (column number not specified) in order to support his position. Applicants respectfully submit that Ozbutun discloses bitmaps and their segments which are not mask columns containing an indication of the character sets (*see* Column 7, lines 15-54 of Ozbutun). Nowhere does Ozbutun, disclose or suggest enabling the processor to create a mask comprising a number of mask columns equivalent to the predetermined number of columns in the character table bank, wherein the mask columns contain an indication of the character sets against which the universal code characters of the electronic message are to be evaluated. Independent claims 34-36 have been amended to recite similar features to the above quoted features. Therefore, Applicants respectfully submit

that independent claims 33-36 are also allowable for at least the foregoing reasons.

New Claims 37-39 each depend from the independent claim 1 and, therefore, contain the features recited in the independent claim 1. As mentioned above, the cited references fail to suggest or disclose each of the features in the independent claims and, thus, necessarily fail to suggest or disclose each of the features in the dependent claims. Therefore, Applicants respectfully request that dependent claims 37-39 are also allowable for at least the foregoing reasons.

CONCLUSION


Applicants respectfully submit that this application is in condition for allowance and such disposition is earnestly solicited. If the Examiner believes that a telephone conference or interview would advance prosecution of this application in any manner, the undersigned stands ready to conduct such a conference at the convenience of the Examiner.

It is believed that no other fees are due in connection with filing this Response. In the event that it is determined that fees are due, however, the Commissioner is hereby authorized to charge the undersigned's Deposit Account No. 50-0311, Attorney Docket No. 23452-092.

Respectfully submitted,

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Dated: 8/28/02

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**APPENDIX A – VERSION WITH MARKINGS TO SHOW CHANGES MADE
IN THE CLAIMS**

1. **(Amended)** A method of evaluating characters in an [a] inputted search string [message] to generate a search index, comprising the steps of:

- a) accepting an input of the characters of the search string [message], wherein the characters can be represented in any of a plurality of character sets corresponding to an undetermined language;
- b) evaluating the search string [message] by comparing each of the characters of the search string [message] to a plurality of pre-determined [set of] candidate character sets to determine one or more [a] matches [match] between the plurality of pre-determined [set of] candidate character sets and the search string [message]; and
- c) generating a search index based on the results of the evaluation of the search string [message] and the plurality of pre-determined candidate character sets.

9. **(Amended)** A system for evaluating characters in an [a] inputted search string [message] to generate a search index, comprising:

an input interface to accept an input of the characters of the search string [message], wherein the characters can be represented in any of a plurality of character sets corresponding to an undetermined language; and

a processor unit, connected to the input interface, the processor unit evaluating the search string [message] by comparing each of the characters of the search string [message] to a plurality of pre-determined [set of] candidate character sets to determine one or more [a] matches [match] between the plurality of pre-determined [set of] candidate character sets and the search string [message], and generating a search index based on the results of the evaluation of the search string [message] and the plurality of pre-determined candidate character sets.

17. **(Amended)** A system for evaluating characters in an an [a] inputted search string [message] to generate a search index, comprising:

input interface means to accept an input of the characters of the search string [message], wherein the characters can be represented in any of a plurality of character sets corresponding to an undetermined language; and

processor means, connected to the input interface means, the processor means evaluating the search string [message] by comparing each of the characters of the search string [message] to a plurality of pre-determined [set of] candidate character sets to determine one or more [a] matches [match] between the plurality of pre-determined [set of] candidate character sets and the search string [message], and generating a search index based on the results of the evaluation of the search string [message] and the plurality of pre-determined candidate character sets.

25. **(Amended)** A storage medium for storing machine readable code, the machine readable code being executable to evaluate characters in an inputted electronic search string [message] according to the steps of:

a) accepting an input of the characters of the search string [message], wherein the characters can be represented in any of a plurality of character sets corresponding to an undetermined language;

b) evaluating the search string [message] by comparing each of the characters of the search string [message] to a plurality of pre-determined [set of] candidate character sets to determine one or more [a] matches [match] between the plurality of pre-determined [set of] candidate character sets and the search string [message]; and

c) generating a search index based on the results of the evaluation of the search string [message] and the plurality of pre-determined candidate character sets.

33. **(Amended)** In a computer system comprising a processor, an input device and a storage device, which stores a character table bank comprising a predetermined number of columns and a number of character rows, each of which correspond to a universal code character, a method for implementing the processor to evaluate the universal code characters in an electronic search string [message], which is received at the input device, and enhance, based upon the evaluation of the electronic search string [message], a search index, which is accessible by the computer system and comprises a code page representing each of a plurality of the electronic search strings [messages] that are indexed, the method comprising:

enabling the processor to create a mask comprising a number of mask columns equivalent to the predetermined number of columns in the character table bank, wherein the mask columns contain an indication of the character sets against which the universal code characters of the electronic search string [message] are to be evaluated;

enabling the processor to receive the electronic search string [message] at the input device, the electronic search string comprising a plurality of characters, wherein the plurality of characters can be represented in any of a plurality of character sets corresponding to an undetermined language;

evaluating the plurality of universal code characters of the electronic search string [message] received at the input device by accessing the corresponding character row of the character table bank for each of a predetermined number of the characters of the electronic search string [message] and

performing a logical AND operation between each of the corresponding character rows and the mask;

filling a character match list with an entry for each of the character sets that result in a non-zero result after the logical AND operation;

returning the character match list; and

enhancing the search index by indicating for each code page the character sets returned in the character match list.

34. (**Amended**) A computer system for evaluating universal code characters in an electronic search string [message] and enhancing a search index, the computer system comprising:

a processor,

an input device;

a storage device, which stores a character table bank comprising a predetermined number of columns and a number of character rows, each of which correspond to a universal code character;

wherein the processor evaluates the universal code characters in an electronic search string [message], which is received at the input device, and enhances, based upon the evaluation of the electronic search string [message], a search index, which is accessible by the computer system and comprises a code page representing each of a plurality of the electronic search string [messages] that are indexed;

and wherein the processor creates a mask comprising a number of mask columns equivalent to the predetermined number of columns in the character table bank, wherein the mask columns contain an indication of the character sets against which the universal code characters of the electronic search string [message] are to be evaluated;

and wherein the processor enables receipt of the electronic search string [message] at the input device, the electronic search string comprising a plurality of characters, wherein the plurality of characters can be represented in any of a plurality of character sets corresponding to an undetermined language;

and wherein the processor evaluates the plurality of universal code characters of the electronic search string [message] received at the input device by accessing the corresponding character row of the character table bank for each of a predetermined number of the characters of the electronic search string [message] and performs a logical AND operation between each of the corresponding character rows and the mask;

and wherein the processor fills a character match list with an entry for each of the character sets that result in a non-zero result after the logical AND operation;

and wherein the processor returns the character match list; and

wherein the processor enables enhancement of the search index by indicating for each code page the character sets returned in the character match list.

35. **(Amended)** A computer system for evaluating universal code characters in an electronic search string [message] and enhancing a search index, the computer system comprising:

processor means,

input device means;

storage device means, which stores a character table bank comprising a predetermined number of columns and a number of character rows, each of which correspond to a universal code character;

wherein the processor means evaluates the universal code characters in an electronic search string [message], which is received at the input device means, and enhances, based upon the evaluation of the electronic search string [message], a search index, which is accessible by the computer system and comprises a code page representing each of a plurality of the electronic search string [messages] that are indexed;

and wherein the processor means creates a mask comprising a number of mask columns equivalent to the predetermined number of columns in the character table bank, wherein the mask columns contain an indication of the character sets against which the universal code characters of the electronic search string [message] are to be evaluated;

and wherein the processor means enables receipt of the electronic search string [message] at the input device means, the electronic search string comprising a plurality of characters, wherein the plurality of characters can be represented in any of a plurality of character sets corresponding to an undetermined language;

and wherein the processor means evaluates the plurality of universal code characters of the electronic search string [message] received at the input device means by accessing the corresponding character row of the character table bank for each of a predetermined number of the characters of the electronic search string [message] and performs a logical AND operation between each of the corresponding character rows and the mask;

and wherein the processor means fills a character match list with an entry

for each of the character sets that result in a non-zero result after the logical AND operation;

and wherein the processor means returns the character match list; and

wherein the processor means enables enhancement of the search index by indicating for each code page the character sets returned in the character match list.

36. **(Amended)** An electronic storage medium for storing machine readable code, the machine readable code enabling a computer system comprising a processor, an input device and a storage device, which stores a character table bank comprising a predetermined number of columns and a number of character rows, each of which correspond to a universal code character, to execute the machine readable code and implement a method for evaluating the universal code characters in an electronic search string [message], which is received at the input device, and enhancing, based upon the evaluation of the electronic search string [message], a search index, which is accessible by the computer system and comprises a code page representing each of a plurality of the electronic search strings [messages] that are indexed, the method comprising:

enabling the processor to create a mask comprising a number of mask columns equivalent to the predetermined number of columns in the character table bank, wherein the mask columns contain an indication of the character sets against which the universal code characters of the electronic search string [message] are to be evaluated;

enabling the processor to receive the electronic search string [message] at the input device, the electronic search string comprising a plurality of

characters, wherein the plurality of characters can be represented in any of a plurality of character sets corresponding to an undetermined language;

evaluating the plurality of universal code characters of the electronic search string [message] received at the input device by accessing the corresponding character row of the character table bank for each of a predetermined number of the characters of the electronic search string [message] and

performing a logical AND operation between each of the corresponding character rows and the mask;

filling a character match list with an entry for each of the character sets that result in a non-zero result after the logical AND operation;

returning the character match list; and

enhancing the search index by indicating for each code page the character sets returned in the character match list.

Claims 37-39 ARE ADDED AS NEW CLAIMS.